

XVII. *On some Luminous Coleoptera from Ceylon.* By  
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PLATE LXXXVI.

*Harmatelia bilinea*, Walk.

A short note on the occasional luminosity of this beetle was published in "Spolia Zeylanica," vol. vii, Part XXVIII, p. 212, Aug. 1911.

At that time I had not personally noticed any luminous phenomena connected with this insect, although many living examples of *Harmatelia* had been under observation. But, in September 1911, two specimens, caught in the Peradeniya Gardens, exhibited a distinct light when examined in a dark room.

It was seen at once that the light was not confined to a single area, as in most other *Lampyridae*, but was emitted from several distinct foci on each side of the body. These luminous spots appeared to be closely connected with the spiracles. Eight luminous foci could be distinguished on each side of the abdomen, and one on each side of the thorax—the latter apparently situated beneath the shoulder of the elytron. When emitting the light, the abdomen was slightly depressed, to expose the dorso-lateral area, and, when at its brightest, the whole abdomen appeared to be irradiated internally. The luminous spots were more brilliant on the dorsum, but could be plainly distinguished (by transmission) on the venter of the insect.

The accompanying figure (Plate LXXXVI, Fig. 1) shows, diagrammatically, the position of the phosphorescent foci as seen from below, the luminous spots being represented in red.

I have not yet succeeded in determining the female of this beetle, and it remains uncertain whether the other sex is an apterous grub-like creature, or whether it is in the form of a normal beetle.

*Dioptoma adamsi*, Pascoe.

Of this insect, Dr. Sharp remarks (Camb. Nat. Hist., Insects, Part II, p. 252): "Nothing is known as to the habits of this curiosity, not even whether it is luminous in one or both sexes."

I am now in a position to state definitely that *Dioptoma* is luminous, in both sexes. On the 12th of this month (Sept. 1912) I observed a glow-worm displaying its light and evidently signalling for the male. The hinder part of her body was recurved over the back, so that the large sub-terminal photogenic organ was fully exposed. While examining the female (without disturbing her) I witnessed the advent of the male. His approach was not heralded by any display of fireworks on his part; but his arrival caused a partial eclipse of the luminous disc on the female, and her tail was immediately turned down to the normal position. On boxing the specimens, I found the male *in coïtu*, and discovered that I had captured the two sexes of *Dioptoma adamsi*.

Later, when examining my captures in the dark, I was interested to observe that the male *Dioptoma* (hitherto supposed to be non-luminous) displays—under sexual excitement—a brilliant series of lights of an emerald green colour. There is a transverse series of 4 luminous spots along the posterior margin of the prothorax; a marginal abdominal series of 8 on each side; and two converging dorsal series (of 3 points) on the hinder segments of the abdomen. It is possible that this dorsal series may extend towards the base of the abdomen, but the other spots would be eclipsed by the opaque elytra. When viewed from below, intermittent flashes appeared to emanate from the ventral area of the thorax, but I was unable to locate their exact position.

The accompanying diagram (Plate LXXXVI, Fig. 2) represents a dorsal view of the male *Dioptoma*, with elytron and wing removed on one side, to show the position of the luminous spots. I cannot guarantee the absolute accuracy of the position of each spot, as it is difficult to determine the segments of the living insect—when examined in the dark; but the number of visible luminous points was verified several times.

The female *Dioptoma* is an elongate apterous grub-like insect; the body sub-cylindrical, slightly broader than deep; the segments approximately of equal width, except

